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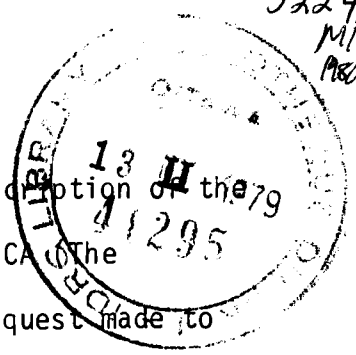

FLOREAT COLOMBIA

The attached paper presents a brief background description of the project which has been prepared in collaboration with ICA (The Colombian Agricultural Institute) as a result of the request made to IDRC at the Imasco sponsored meeting held at the Chateau Laurier on November 1st and 2nd, 1970.

The preparation of this project entailed a one week visit to Colombia in January 1971 during which time I visited CIAT (The International Centre for Tropical Agriculture at Cali) and Caqueza, a visit to the Puebla project and to CIMMYT (The International Centre for Wheat and Maize Research) in Mexico in February followed by a two week visit to Colombia in March during which time I spent a week in Caqueza and revisited CIAT.

During my week in Caqueza I visited a number of schools, attended and addressed meetings of the local farmers Association and visited about 30 farms as part of the process of studying cultivation practices and selecting cooperating farmers for experimental trials. As a result of previous discussions in Ottawa with Dr. Steppler I also took an active part in the design of the 1971 crop experiments. Additionally I interviewed several young Canadians working in Colombia who were possible candidates for the proposed technical assistance posts. During the latter part of my visit I also made contact with the ecclesiastrial authorities. On my next visit I hope to meet with the secretary to the archbishop of Bogota and to discuss the possibility of a population science aspect of the project which would be acceptable to the church.

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On the basis of my personal knowledge of Latin America, and of Colombia in particular, I believe that this is an excellent opportunity for Canadian participation in this type of project. Both farmer and official support is good. The project team is dedicated and enthusiastic, were they not weak technically they would not need external support. The type of support proposed is acceptable to both the ICA central office and the field team and should remedy the technical weaknesses. Most of the support proposed is for developing human resources, both Colombian and Canadian, and will not be lost irrespective of the fate of the project. Although the total project duration is expected to be five or six years the nature of the proposed support readily lends itself to a 2 years programme which can be evaluated after 18 months to decide whether the sponsors wish to extend their support for the second phase of the project. This phasing reduces the requested initial Canadian committment to about $150,000.

Although the project is located in poor and difficult country it is only 1½ hours from Bogota. This facilitates access for Canadian visitors and for Colombian dignitaries and if the project has even half of the impact of the Puebla Project the publicity for its sponsors could be very great.

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I have a series of maps and colour transparencies relating to this project and propose telephoning the Steering Committee to arrange for viewing of these and a discussion on this paper at IDRC's offices in Ottawa shortly after Easter. By this time I also hope to have received reports from a Canadian soil specialist working in Colombia regarding certain problematical aspects of the soils of the area and from the CUSO Mission Chief in Colombia regarding his views on possible CUSO collaboration in the rural education aspects of the project.

The official Colombian request from which this paper was made, was not available in English when I left Bogota but will be copied to you as soon as it is received here. Its substance does not differ materially from the attachment although it presents the background more briefly and the budget in greater detail.

Barry Nestel

B. L. Nestel

THE PROBLEM

The project area is typical of a large belt of land running almost the whole length of the South American continent. The area is characterised by the presence of a few large and many small fragmented farms of the subsistence type on which both productivity and income are low. Past efforts at increasing productivity have achieved limited success. The main reason for this may be that the resources used were too limited and too widely dispersed. The problem also appears to be more than simply one of measuring production. It has complex socio-economic aspects which involves taking into account infrastructural factors such as the transportation system, the employment situation, the market possibilities, the nutritional pattern of the farmers and a better understanding of the farmers motivation given his limited resources and the risk factor associated with change. Given this complexity of factors it is necessary to convince the farmer that any proposed change in his production system will lead to an improvement in the standard of living that he is striving for.

The progress made in the Puebla project in Mexico indicates that in this type of situation a new approach to small farm extension in depth can lead to promising results. Essentially this consists of the transfer of technology and inducing farmers to participate in the establishment and evaluation of improved.

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practices carried out on their own lands. In this context it represents a reform of traditional agriculture, perhaps less dramatic than the conventional concept of agrarian reform, which usually implies a major redistribution of land and the creation of a new infrastructure, but a reform, which judged by the Puebla experience, may be equally or more meaningful in terms of resource utilization in minifundia situation.

It is recognized that Puebla has the advantages of being virtually a mono-culture area and that its ready access to the Centre for Post-graduate studies at Chapingo and to CIMMYT (International Maize and Wheat Research and Training Centre) enabled it to have a particularly strong technical backing. Nevertheless, the approach seems to hold promising possibilities elsewhere in Latin America. For this reason the Extension Service of the Ministry of Agriculture in Colombia, a unit of The Colombian Agricultural Institute (ICA), has identified a number of areas in Colombia where Puebla-type projects could be established. ICA has also sent a number of its professional staff to Mexico either on short courses or to study for Masters degrees at Chapingo and in the Puebla Project.

The first of the Puebla-type projects proposed for Colombia is in the Rio Negro area 25 Km for Medellin. In this area a project became operational at the end of 1970 with some external support from CIMMYT and, to a lesser extent, CIAT, (the International Centre

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for Tropical Agriculture at Palmira in Colombia).

This project currently involves 8 municipalities and, hopefully, will later be extended to cover 22.

A second such project has been tentatively identified in an area whose centre lies at Caqueza about 45 Km east of Bogota. This area appears to be suitable for the Collaborative approach in which the Floreat Colombia Group has expressed interest.

THE PROJECT AREA

The area consists of 7 municipalities totalling 165,000 Ha (410,000 acres) of which about 65,000 Ha lies over 3,000 metres (10,000 feet) and is largely woodland and hill grazing; a further 65,000 Ha lies between 2,000 and 3,000 metres above sea level. This is a temperate zone with temperatures ranging from 41-73°F and averaging about 60°F, the main crops are pastures, corn, beans, potatoes and peas. The area receives occasional night frosts and contains about 38% of the total population of 80,000 found in the project area.

Practically all of the rest of the population live in the frost free 35,000 Ha bying between 1,000 and 2,000 metres (3300-600 ft) above sea level. This is a sub-tropical zone with a temperature range of 55-81°F fan an average of 68°F. The main crop again is corn with various types of beans also being important, bananas (plantains) sugar cane, coffee, cassava and other tropical crops also grow in this area.

The soils vary considerably in this area. In the sub-tropical zone they tend to be shallow with reasonable drainage. The textures are predominately clay and clay-loams; fertility is moderate to low as is phosphate content. These soils tend to be high in potassium, medium in calcium and nitrate content and low in ammonia. Ionic exchange capacity is medium to low and moisture retention is low. Clays, hardpan and gravels occure beneath the profile.

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Much of the temperate zone has a slope of 12-25% although steeper areas occur. Drainage is moderate to good and the depth of soil is shallow to moderate. The texture is predominately clay and fertility is low to very low. These soils tend to be very acid with a low P and Ca content, moderate in ammonia and high in nitrate and potassium. The ionic exchange capacity is medium to high. Erosion is common, especially in the watersheds. Outcrops of clay and sandstone penetrate the profile.

The Population - About 18% of the 80,000 population live in urban centres, the remainder are rural and consist of 13,000 farm families. There has been some emigration of younger adults due to unemployment and 45% of the current population are under 15 years old. 66% of the population over 5 years old have attended school but in most instances only for 1-3 years. The 1964 census listed only 120 people in the whole area (21 in the rural parts) as having ever attended University. About 75% of the economically active population work in agriculture; 20% are listed as employees, 30% are self employed and 25% are casual labour.

A case study of 203 farms of less than 25 Ha in this area in 1966 showed an average net farm income of $454 (US) or $84.00 per head of population. Preliminary information gathered more recently indicates little change in this figure.

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The Land Use Pattern - About 64% of the farms covering 65% of the land are owner occupied. Farms tend to be fragmented with 87% of the parcels or 37% of the total land, being in units of less than 5 Ha. Each farm consists of an average of 3 parcels.

About 20% of the land has no agricultural use and a further 35% (mainly in the higher regions) is under permanent pasture. After allowing for towns, woodland etc. less than 30% (50,000 Ha) of the land is used for agriculture, a large part of this is left fallow each year.

Maize is the most important crop and is sown by 78% of the 13,000 farmers on 11,000 Ha or 40-50% of the land in annual cultivation. Yields average about 700 Kg/Ha (600 lbs/acre) or about one half of the national (or departmental) average. This yield level is equivalent to an income of about $50. (US) per Ha ($20.00 acre). However, because of associated cropping (see later) total income per Ha is considerably greater. About half of the corn is home consumed, 35% used for payment in kind and 15% sold.

With rare exceptions maize cultivation is carried out concurrently with other crops such as potatoes, cassava and various types of food legumes. Some crops, especially onions and tomatoes, are grown commercially for the Bogota market.

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Land preparation takes place in January to March with planting (on non-irrigated lands) being associated with the April rains. Harvesting of the various crops occurs throughout the following 7-10 months. Cultivation systems for traditional crops are primitive; in one sample of 197 farms in 1966 none were using herbicide, improved seed or soil analysis; five applied artificial fertilizer and twenty used insecticides. However, by 1971 a number of farmers were using purchased inputs for vegetable crops destined for the Bogota market, some fertilizer, mainly household ash is applied to potatoes but corn and beans are still rarely fertilized.

No extension service existed in the Region until September 1970 when an office with an agronomist, a veterinarian and three diplomates was opened for the single municipality of Caqueza. This office has been absorbed by the new project (see later).

The Average Farm - Whilst averages are notoriously deceptive, some idea of the overall pattern of farming in the sub-tropical area can be obtained from the 1960 average figures for a farm in Caqueza.

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CROP	AREA	TONS/HA	NATIONAL AVERAGE TONS/HA
Corn	1.3	0.84	0.93
Potatoes	0.7	6.82	6.67
Beans	1.2	0.09	0.33
Peas	0.7	0.22	0.46
Yams	0.6	3.31	8.67
Sugar cane	0.5	18.73	48.00
Banana/ plantain	0.1	37.00	
Coffee	0.2	0.38	

Because of associated cropping the "average" farm represented by the above data probably totals less than 2 Ha.

Some recent estimates of the project staff for per Ha production under associated cropping are as follows:

CROP	Hg/Ha	VALUE IN COL $ PER Ha	VALUE PER Ha IN CDN $
Maize	700	1,000	
Potatoes	5,500	4,500	
Beans	300	1,500	
Peas	500	1,200	
		8,200	$ 430.

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Although the best source of income was potatoes, this crop has the highest labour requirement, however in the absence of alternative sources of employment the opportunity cost of labour is small. The associated cropping system spreads the risk against disease of drought and provides a gross income equal to that from 5.7 tons per Ha of monoculture maize.

The average number of livestock per farm is as follows:

Cattle	4
Pigs	3
Poultry	19

The area as a whole contained 45,000 cattle, 22,000 pigs and 200,000 poultry in 1960. Since that date there has been a considerable expansion in poultry production largely due to a very successful course held in 1970 by SENA (The National Apprentice Training Institute). One hundred or more semi-modern laying units, each with 300-500 birds now exist in the area.

Marketing - A large part of the produce grown is home consumed or used as payment for goods and services. The remainder is marketed mainly at twice weekly markets held in the seven municipal "capitals". Each of these towns has access by an all weather road to Bogota (1-3 hours). Vegetables are purchased by wholesalers for sale in Bogota - no contract growing occurs.

THE PROJECT

The project proposed in this area has five main objectives -

a) To develop and prove a strategy for the transference of technical economic and social knowledge to small farmers which favours their active participation in matters such as the use of credit and purchased inputs, the sale of their products and the betterment of their social conditions:

b) To use this strategy to bring about higher crop and animal yields, improved economic returns and better family living in the project area;

c) To establish a system whereby the farmers of the project area take increasing responsibility for the execution and expansion of this strategy using their own initiative;

e) To train extension staff in the interdisciplinary approach adopted in this project and in its technical, economic and social findings so that these can be utilized in other areas of the country (and continent).

THE BROAD STRATEGY

A key aspect of the project which, therefore, deserves special mention is that of community participation. It is believed that community members must be encouraged to accept an important role in the planning and execution of the project. This community participation is considered to be essential to success and the achievement of permanent results.

Before reaching the stage of widespread farmer involvement, the project has to undergo three initial exercises:

a) The establishment and training of the project staff;

b) The preparation of up-to-date basic relating to the project area;

c) The testing of new technological ideas for the project area.

a) The Staff

The extension office opened at Caqueza in September 1970 had a staff of one agronomist, one veterinarian/animal scientist and three agricultural diplomates (practicos). In March 1970 the agronomist was transferred, the project area extended to cover the municipalities of Chipaque and Ubaque as well as Caqueza and the following staffing pattern established.

a) Projector coordinator (trained for 3 months at Puebla in extension communication)

b) Project investigation officer

c) Project evaluator (socio-economics) post (unfilled 1/4/71)

d) Home economist

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e) Veterinarian

f) Seven' praticos (diploma or intermediate level extension officers)
(3 post unfilled)
In addition one US Peace Corps volunteer is working with this team.

Proposals for strengthening the capabilities of the team by providing scholarships and Canadian technical assistance are presented later in this report.

It is anticipated that ICA will add a further investigation officer and evaluator to the team in 1972 and an additional officer in communication as well as further practicos in 1973 when the project will be extended on a larger scale.

b) The Preparation of Basic Data

Most of the data quoted earlier are derived form the 1960 Census are of limited reliability. More up to date are needed especially with respect to:

i) Production and Income. Information would be required on 1) resources, including land, climate, man materials, marketing and equipment; 2) production techniques as currently practiced, existing cropping and production pattern with special attention to interrelationships among crops and products, and the flow of income in kind and cash throughout the year, whether from on or off farm sources.

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ii) Expenses. In a similar manner it would be essential to determine the family expenditure pattern in cash and in kind throughout the year.

iii) Spending Patterns. The next step would be that of finding out the consumption pattern of the farm families, including where possible, a detailed description of the typical daily diet.

iv) Motivations and Aspirations. It would be essential to find out the aspirations that these people have and those factors that would motivate them to participate in the action program. The role of local leaders would be of great importance in this connection.

v) Social Structure and Institutions. Having determined production, income, consumption and aspirations, the bench-mark study would also have to examine those factors which modify them in an important way. These modifiers would include the social structure, the relevant institutional arrangement including land holding, schooling, health and welfare services, as well as credit and technical assistance. Markets including prices, transportation, storage, availability of both factors and products, would be examined in detail. Special attention would be given to market structure and function as they affect the community being studied.

Crucial to the foregoing would be knowledge of level of information and types of communication essential to the action phase of the project.

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c) The Testing of New Technological Ideas

The absence of technical information from the project area regarding both the current conditions of cultivation and the required proven package of practices (varieties, fertilizer, market conditions, pesticides, etc.) necessary to achieve the desired level of changes highlights the needs to initiate adaptive field research of various technical, social and economic problems before the project begins an intensive extension program with the farmers themselves. It is particularly necessary to:

i) identify the most promising fields for agronomic research from amongst the large variety fo alternatives available;

ii) determine the optimum type of package from the technical, economic and social standpoints from improving the system in which corn is grown in association with other crops;

iii) Formulate recommendations for the extension officers to use;

iv) define the system of communication and technical assistance to be used for persuading the farmers that the project's technical recommendation are economically feasible and socially desirable;

v) establish a system for identifying the achievements of the project.

There is no experimental site in the project area and it is proposed that the adaptive research should be carried out on the lands of collaborating farmers. However, there may be a possibility of carrying out experimental work in 1972 on some lands owned by the municipality of Caqueza. This would enable experiments with new varieties to be tested at no risk to the farmers.

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Fifteen on-farm experiments have been designed for 1971. Five of these deal with fertilizer responses on maize/bean crops, four with fertilizer responses on potatoes/bean/maize associations, five with population density and variety usage on corn/bean associations and one with population density and fertilizer responses using a major change in cultivation system. The first experiment was due to be laid out on March 23rd but because most of the project staff did not arrive at Caqueza before February, it is questionable whether all 15 experiments will be able to be carried out this year.

THE TACTICS FOR ACTION

The Caqueza Project is designed to bring about the integrated development of a specific geographic area whose population is primarily agricultural. The goals of the project are to be achieved by working in both the technical and the socio-economic fields.

In the technological field this role will be played by identifying the type of technological transfer which could be used to increase small farm productivity. It is planned to bring this about by considering the small farmer as a dynamic component of the farmer--merchant--institution --technical-service complex which will implement the project. The project will concentrate on the staple foodstuffs; (corn, potatoes, beans) initially by attempting to improve cultivation practices (especially fertilizer use and planting density) and later by introducing improved varieties. It will work initially with local "leaders" by establishing high yielding plots on their own farms. In this way the farmers will act as their own extension agents.

The technical inputs recommended to these local leaders will be provided by the project in 1971 and to some degree in 1972. This will accelerate initial progress at limited cost to the project and with minimal risks to the farmers. For 1971 the project will confine itself to only 2 of the seven municipalities in the area in order to develop

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its approach in greater depth. The main farmer impact of the project is not expected to show up before 1973. It is expected that during the two previous years the project will, for its experimental work, be able to draw heavily on the expertise of ICA and, where necessary, CIAT.

Contact with the farmers is being made through their district Associations, (The Usuarios) and the leaders of these Associations are playing a prominent role in the 1971 field programme by offering their lands for trial areas. First Meetings with the Usuarios in Caqueza and Chipaque in March 1971 attracted attendances of 100&70 respectively. Attendance included many of the farm leaders in these two municipalities.

During 1971 and 1972 the Caja Agraria, INCORA [1] and the private sector will be brought into contact with the project staff and the farm leaders in order to formulate systems for making available inputs and credit. Likewise IDEMA [2] and CECORA [3] will be involved in the organization of produce marketing. For both supplying inputs and marketing outputs the farmers will be encouraged to work on a cooperative basis and if they request it they will be given the assistance necessary for establishing cooperatives. At present the Caja Agraria is far and away the major source of credit in the area, its biggest branch in Caqueza, has about $5 m. Col. (Cdn $250,000) on loan (mainly short term) to the agricultural sector.

1) The Agrarian Reform Institute
2) The Agricultural Marketing Institute
3) The Incora Cooperative arm

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In the socio-economic fields the project will endeavour to link progress in these fields with changes in agricultural systems. Particular emphasis will be given to the role of women in rural life. Advantage will be taken of the resources available and experience gained in working on communications techniques with the farmers themselves in order to try to establish an improved transfer of new socio-economic concepts to the farm wives.

The emphasis on communication techniques may also offer possibilities for feed-backs into programmes for the large "school-age" population in fields such as health and agricultural education. At present about half of the children drop-out after 3 years in school. They receive no agricultural education although most of them will derive their future income from agriculture. Discussions have taken place with CUSO regarding possible assistance to this sector.

THE TARGETS OF THE PROJECT

Until the basic data have been compiled and analysed it will be difficult to quantify the targets of the project, other than expressing them in the general terms used earlier. A study of the farmers motivation in particular may reveal that social factors as much as economic or technical ones figure prominently in their wishes. If the data presented earlier regarding the gross value of production per Ha ($430 Cdn) are valid throughout the Region, the total value of agriculture in the Region will exceed $15 m Cdn (assuming around 30,000 Ha being cultivated, some of this in high income vegetable crops and some income arising from cattle on uncultivated lands), More information is required on the relationship between gross and net values of production before an economic evaluation of the project's possibilities can be undertaken but it may be noted that its projected total cost for the two first years is approximately $¼ m. (Cdn). This includes investment in transferable physical and human resources.

The project offers an interesting opportunity from the research standpoint to carry out a benefit cost analysis of in-depth action for rural development. Colombia does not have the personnel resources to set up many projects of this type, it is therefore of considerable importance to determine at what stage the relatively costly in-depth penetration can be phased out of a programme, with farmers trained to ask for and accept technical advice from a standard extension office.

ORGANIZATION & COORDINATION FOR OPERATING THE PROJECT

Under the current ICA structure overall responsibility for the Project lies in the hands of the Director of the Regional Office No. 1 located in Bogota. This is one of the eight central offices for the extension arm of ICA. The Project coordinator, living in Caqueza, is responsible for the day to day direction of the work of all project staff and he is given administrative support and overall direction by his Regional Director. The Regional office is responsible for purchasing and supplies, for financial control and for arranging for expert advice to be drawn from other arms of ICA at the request of the project coordinator. In conjunction with the Planning Office of ICA and with the Central Planning Organization it is responsible for preparing requests for technical assistance for Region 1.

The coordination of activities between Puebla type projects in Region 1 and other Regions is the responsibility of the Agricultural Production Plans office of the Division of Agricultural Production based at ICA Headquarters.

The project coordinator is responsible for overall direction of field activities in the sphere of investigation, evaluation, communication, animal science and home economics and for integrating their activities into a coherent team approach. The individual specialists in each field are responsible for developing specific programmes in their respective fields under the immediate supervision of the coordinator.

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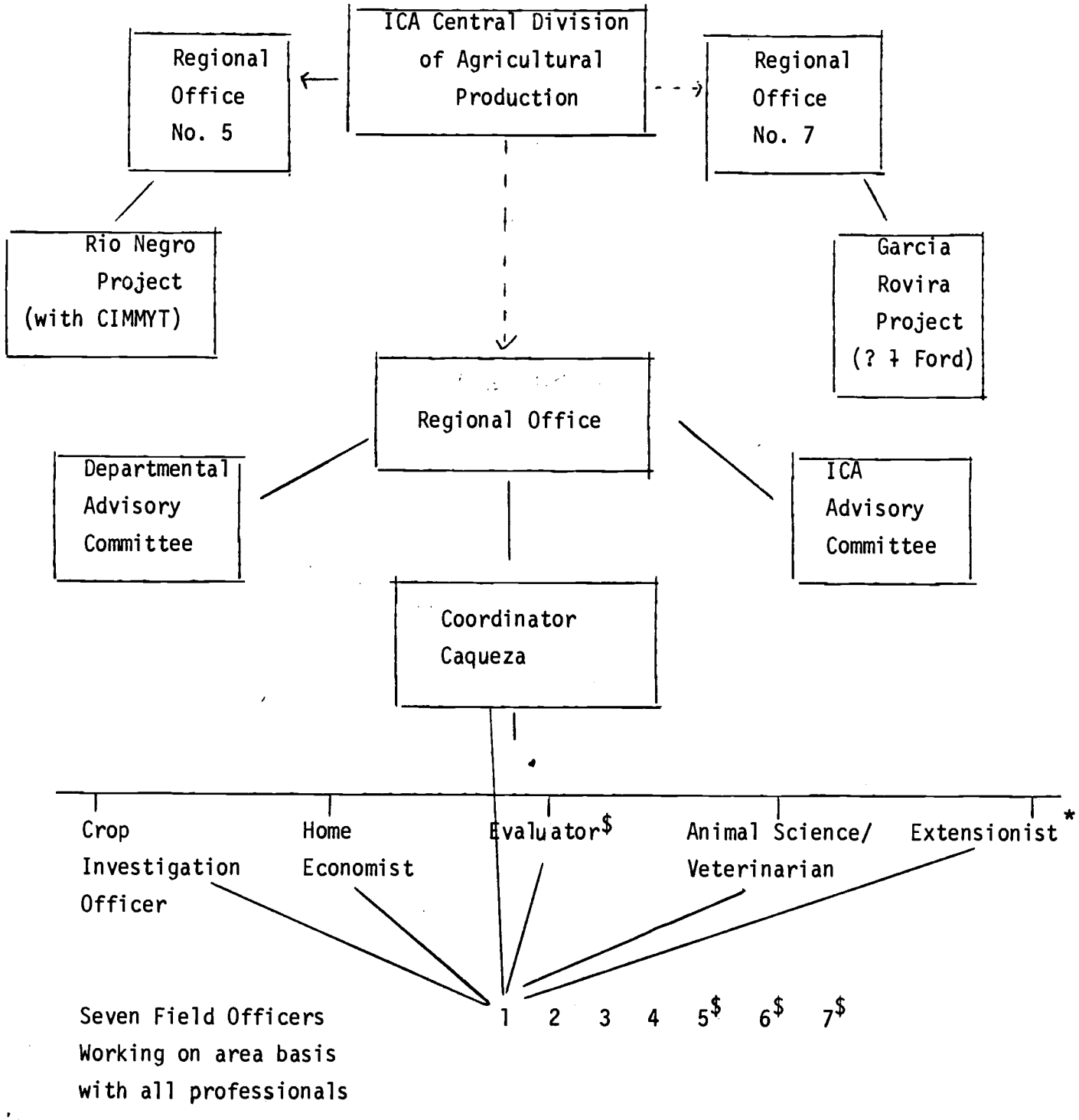
Two advisory committees will be set up at the Regional level. One will consist of ICA specialists and will advise the project in technical fields such as soils, corn, potatoes, etc... The other will contain representatives from the farmers associations and of other agencies and will advise in terms of regional development.

CAQUEZA ORGANIZATION CHART



* Role currently performed by coordinator

$ Post vacant March 23, 1970

CANADIAN PARTICIPATION

In view of the interest of a group of Canadian industries in participating in a Puebla-type project through the management of IDRC, and IDRC's interest in becoming involved in multidisciplinary approaches to development, the Government of Colombia has requested Canadian industry/IDRC participation and support for the Caqueza Project.

Support is requested in the form of
a) scholarships
b) human resources
c) equipment

a) Scholarships:

The project has been conceived as having two stages. Stage 1 is basically the data colletion and staff training program referred to in section 4. During this stage Canadian technicians will participate in the project in a bridging operation whilst Colombian technicians are gaining experience overseas in other developing country projects of this nature. Thus a main thrust in stage 1 is the scholarships program for Colombians.

This covers the following items:

a) attendance by the projects investigation and evaluation officers at a six week course in experimental methodology at CIMMYT in August / September 1971 with a view to training staff for the preparation of the 1972 field research program.

b) subject to satisfactory performance on the above course these two officers and the extension officer to be appointed in 1972, will between them be granted a total of 24 months of CIMMYT field training in 1972 in

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order to give them experience of the day to day operation of a successful project of this nature.

c) A study tour for the project coordinator will be arranged to enable him to visit selected rural development schemes in other parts of the world (e.g. Borgo a Mozzano & Comilla). The object of this scholarship is to broaden the outlook of the coordinator to small farmer development by examining projects which involve crops other than solely maize and which give emphasis to social welfare as well as to production technology.

d) Two short-term scholarships (one in 1971 and one in 1972) for extension agents (practicos) working at the farmer level in order to broaden their approach. There scholarships are intended for men with 15 or more years of field experience in the Colombian extension service. Scholarships at this level are an innovation although to a large extent the success of the project depends on the activities and qualities of these agents.

b) Human Resources:

The overseas scholarship program (total cost $15,700) will be supported by the addition of technical expertise to the project team.

Two overseas specialists have been requested for the two year duration of the project. These men will work in the field team under the day to day supervision of the Colombian coordinator. In this sense the project differs from many aid programmes in which foreign "experts" have local counterparts. In this programme the team is essentially a Colombian one with Canadian support rather than vica versa).

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a) An expert in soil science to assist the project investigator in the design and analysis of the field experiments, to identify the various soil types in the region on which trials should be laid out and to train the second Colombian investigator during 1972.

b) An expert in agricultural economics and production marketing with a sociological bias to work with the project evaluator in establishing the base survey data in the production, economic and sociological fields, to assist in defining the targets and achievements of the project and to provide in-service training for the second evaluator in 1972.

Additionally two consultants have been asked for.

a) to provide guidance to the home economics and sociological aspects of the teams work through two short-term visits annually.

b) to provide short-term guidance to the project with respect to its overall economic orientation and to assist ICA in assessing the cost/benefit relationships of this type of project from the national standpoint.
It is anticipated that these two consultants would be members of the Projects ICA technical advisory committee.

In addition to the above personnel it is possible that from the Industry Group, Canada could provide a series of shorter term expertise in fields where local expertise is in short supply. These might include personnel from a variety of companies. The exact definition of the services which be rendered under this novel approach would depend very largely upon the companies interested in Participation.

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Equipment

a) Accomodation

In view of the absence of suitable housing in the project area and the desirability of project staff living (at least 5 days a week) in this area, the question of staff housing in relation to the project also needs to be considered. This not only concerns staff assigned full time to the project but also has implications for training. Apart from office facilities, it is considered necessary to build some single accommodation in the project headquarters complex in order to ensure that staff of the required calibre can be attracted to this project. The project request includes an item of $15,000. for providing a 2,000 sq. ft. building with 2 officers, a meeting room, a storeroom and toilet downstairs and six small bedrooms, two bathrooms, a kitchen and cafeteria upstairs. This sum covers labour, construction and some furnishings for a simple building. The land, design and supervision costs would be provided by ICA. Two of the bedrooms would be reserved for the use of Canadian staff and visitors.

b) Transport

The project contains a request for five vehicles (3/4 ton pick-ups) two for the Canadian experts and three for Colombian staff.

These vehicles would be maintained, services and fueled from the ICA budget which would cover all internal transport costs, including

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air transport within Colombia, for all project staff, Colombian and Canadian.

c) Equipment

The main item in the request here is for audio-visual equipment for use at the village level. The Puebla project has demonstrated that the value of this approach seems to warrant repetition. For film production, the resources of the ICA film unit are available to support the project team. The high cost of the equipment requested is due to the fact that most of the villages lack electricity and a generating unit is necessary with the equipment proposed.

In addition the audio-visual equipment the request includes a limited sum for funds for small equipment. Part of these funds will be at the disposal of the two overseas specialists to ensure that their programmes are not at any time impaired by temporary shortages of local currency.

FINANCIAL SUPPORT REQUESTED FROM IDRC

US $

		1st YEAR	2nd YEAR	TOTAL
	TECHNICAL EXPERTS			
1)	Soil Specialist	20,000	20,000	40,000
2)	Agricultural Economist	20,000	20,000	40,000
3)	Rural Sociology Consultant	2,000	2,000	4,000
4)	Evaluation Consultant	2,000	2,000	4,000
	(Sub-total)	(44,000)	(44,000)	(88,000)
	SCHOLARSHIPS			
5)	2 short courses at Puebla	1,600		1,600
6)	3 scholarships totally 24 months at Puebla		8,500	8,500
7)	Orientation for Coordinator	4,000		4,000
8)	2 short courses for Practicos	800	800	1,600
	(Sub-total)	(6,400)	(9,300)	(15,700)
	Equipment			
9)	Office construction & supplies	1,500		1,500
10)	Audio visual equipment	10,000		10,000
11)	5 vehicles	17,500		17,500
12)	small & miscellaneous equipment	2,000	2,000	4,000
13)	Contingencies	3,000	3,800	6,800
	(Sub-total)	(47,500)	(5,800)	(53,300)
	Total	97,900	59,100	157,000

FINANCIAL SUPPORT FROM ICA

US $ (at 20 Col. $ = 1 US $)

	STAFF	1st YEAR	2nd YEAR	TOTAL
1)	Coordinator	4,500	4,500	9,000
2)	Evaluator	4,500	3,000*	7,500
3)	Home Economist	2,100	2,100	4,200
4)	Investigator	4,500	3,000*	7,500
5)	Communications Specialist	4,500	4,500	9,000
6)	Second Investigator		4,500	4,500
7)	Second Evaluator		4,500	4,500
8)	Seven practicos	17,600	19,400	37,000
9)	Two secretaries	4,200	4,620	8,820
	(sub-total)	(41,900)	(50,120)	(92,020)
	Non-Staff costs			
10)	Local transport costs for IDRC staff	500	500	1,000
11)	Local Travel costs for Colombian staff	1,500	1,500	3,000
12)	Travel costs outside project area	1,500	1,500	3,000
13)	Vehicle maintenance	3,000#	3,000#	6,000#
14)	Vehicles	8,000#		8,000#
15)	Purchase of lot	2,000		2,000
16)	Design of building	1,000#		1,000#
17)	Office Equipment	500#		500#
18)	General Costs	5,000	5,000	10,000
	(sub-total)	(23,000)	(11,500)	(34,500)
	Total	64,900	(61,620)	(126,520)

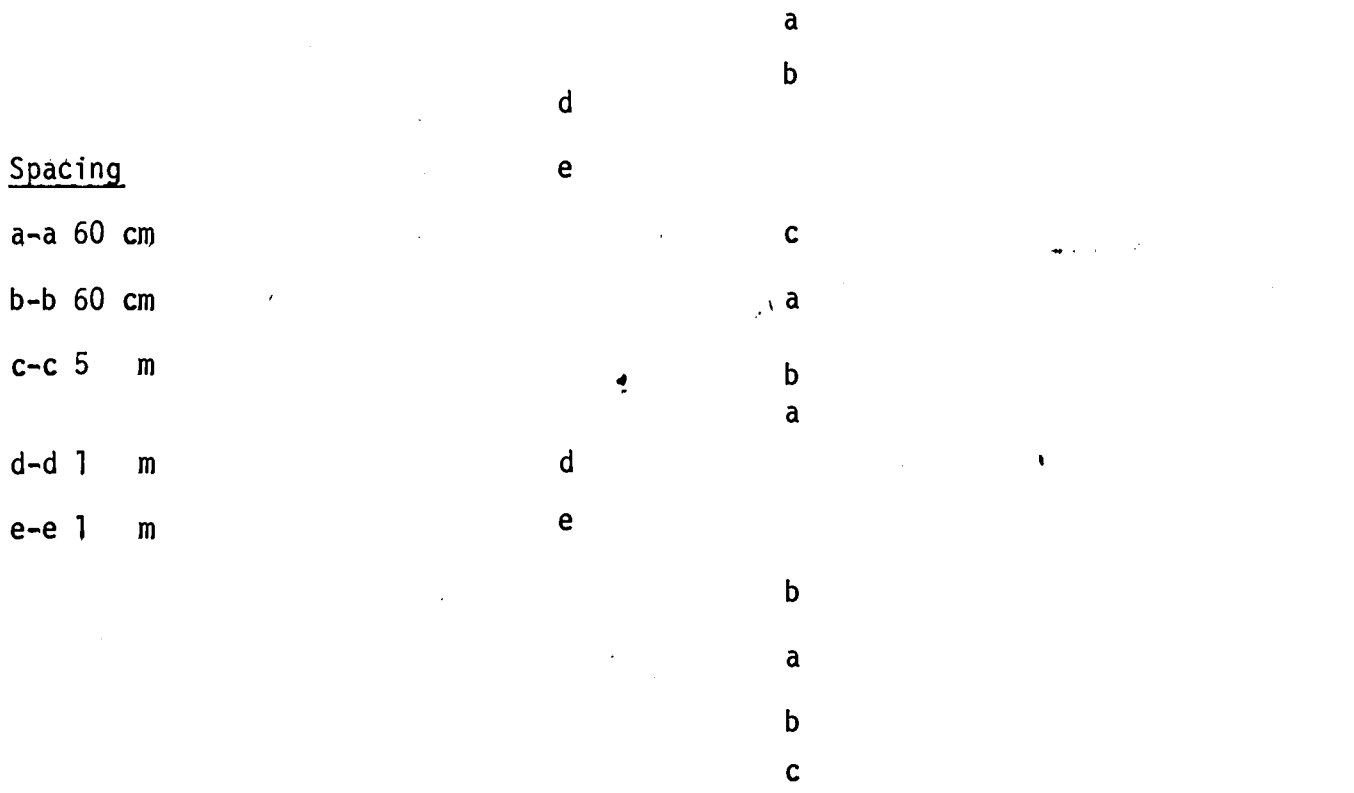
* 2/3 salary whilst on scholarship

provisional estimates - omitted from Colombian documents

Appendix 1

Typical Cultivation system irrigated land in Caqueza

CODE	CROP	SEEDED	HARVESTED
a	Potatoes	Early January	Early June
b	Broad Beans	Early January	Mid April
c	Marron	Early January	July
d	String Beans	Late February	End August
e	Maize	Late February	Early September (sweet) or November



Spacing

a-a 60 cm

b-b 60 cm

c-c 5 m

d-d 1 m

e-e 1 m